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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,124	03/05/2002	David Crocker	U 013897-6	5132

7590

01/13/2005

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EXAMINER

NAHAR, QAMRUN

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,124

Applicant(s)

CROCKER, DAVID

Examiner

Qamrun Nahar

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/05/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 have been examined.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Drawings

3. Figures 1-3 should be designated by a legend such as "--Prior Art--" because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: Section labels for each section of the specification is missing.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

5. Claims 4 and 14 are objected to because of the following informalities: “but” on line 2 of the claims should be deleted. Appropriate correction is required.
6. Claims 8 and 18 are objected to because of the following informalities: “**that is** whether **they** have an associated variant array if **they** are recursive” on lines 12-13 of the claims should be “whether **the target program segments** have an associated variant array if **the target program segments** are recursive”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
8. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claims 1 and 11 recite the limitation “**the** value of the respective member” in line 10 of the claims. There is insufficient antecedent basis for this limitation in the claims. Therefore, this limitation is interpreted as “**a** value of the respective member”.

Claims 2-10 and 12-20 are rejected for dependency upon rejected base claims 1 and 11 above, respectively.

10. Claims 1 and 11 recite the limitation "**the** element of the variant" in lines 12-13 of the claims. There is insufficient antecedent basis for this limitation in the claims. Therefore, this limitation is interpreted as "**an** element of the variant".

Claims 2-10 and 12-20 are rejected for dependency upon rejected base claims 1 and 11 above, respectively.

11. Claims 8 and 18 recite the limitation "**the** call" in line 8 of the claims. There is insufficient antecedent basis for this limitation in the claims. Therefore, this limitation is interpreted as "**a** call".

Claims 9-10 and 19-20 are rejected for dependency upon rejected base claims 8 and 18 above, respectively.

12. Claims 8 and 18 recite the limitation "**the** target program segment" in line 9 of the claims. There is insufficient antecedent basis for this limitation in the claims. Therefore, this limitation is interpreted as "**a** target program segment".

Claims 9-10 and 19-20 are rejected for dependency upon rejected base claims 8 and 18 above, respectively.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1-7 and 11-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Gupta (U.S. 6,343,375).

Per Claim 1 (as best understood):

The Gupta patent discloses:

- **a process of validating that a computer program segment with more than one path therethrough is bounded, the computer program segment comprising a recursive cycle or a loop (column 5, lines 55-67 to column 6, lines 1-4)**
- **a) assigning a variant ordered array to the cycle or loop wherein members of the array are expressions derived from functions of variables and/or parameters of the program and the member at each position in the array represents a path through the cycle or loop; b) defining a predetermined ordered array of corresponding elements of predetermined values (column 6, lines 5-31)**

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- c) creating a hypothesis that a value of the respective member of the array is decreased when the corresponding path is traversed and the value of the members at earlier positions in the array are unchanged; and that the value of an element of the variant ordered array is never less than the value of the corresponding element of the predetermined ordered array; and d) proving the hypothesis for each path through the program segment (column 10, lines 6-50).

Per Claim 2 (as best understood):

The Gupta patent discloses:

- wherein the program segment is a method of an object oriented program (column 9, lines 59-67).

Per Claim 3 (as best understood):

The Gupta patent discloses:

- wherein the computer program segment is a loop which may perform any of a plurality of actions dependant on prevailing program conditions, and step a) of assigning a variant ordered array comprises assigning a member of the array to each action such that the value of the member decreases when the corresponding action is performed, and steps c) and d) of creating and proving a hypothesis comprise finding an order of the members of

the array such that each action does not change the value of the members of the ordered array preceding the member corresponding to that action (column 10, lines 6-37).

Per Claim 4 (as best understood):

The Gupta patent discloses:

- wherein the program segment is an isolated recursive cycle that does not intersect with any other cycle, wherein the cycle can call itself in more than one way, and step a) of assigning a variant ordered array comprises assigning a member of the array for each way in which the cycle can call itself, and steps c) and d) of creating and proving a hypothesis comprise finding an order of the members of the array such that way of calling itself does not change the value of the members of the ordered array preceding the member corresponding to that way of calling itself (column 12, lines 1-43).

Per Claim 5 (as best understood):

The Gupta patent discloses:

- wherein the program segment comprises intersecting recursive cycles that intersect solely at a single point and wherein step a) of assigning a variant ordered array comprises assigning a variant ordered array to the point where the recursive cycles intersect, wherein members of the array represent each of the intersecting cycles respectively (column 6, lines 32-55).

Per Claim 6 (as best understood):

The Gupta patent discloses:

- wherein the program segment comprises recursive cycles that intersect with each other at a first plurality of points, wherein step a) of assigning a variant ordered array comprises assigning a variant ordered array to each intersecting cycle such that each variant has at least a second plurality of members and corresponding members of the second plurality of members of each variant are of the same type so that the values thereof may be compared and step c) of creating a hypothesis comprises creating a hypothesis that for any path from a first point with a variant to the same point or to a second point with a variant, not passing through a third point with a third variant, the value of the corresponding member of the variant decreases and all preceding members of the arrays remain unchanged (column 24, lines 15-50).

Per Claim 7 (as best understood):

The Gupta patent discloses:

- wherein each of the variant arrays for the program segment has an equal number of members (column 24, lines 15-50).

Per Claims 11-17 (as best understood):

These are system versions of the claimed process discussed above (claims 1-7, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Gupta.

Allowable Subject Matter

15. Claims 8-10 and 18-20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Thursdays from 8:30 AM to 6:00 PM. The examiner can also be reached on alternate Fridays.

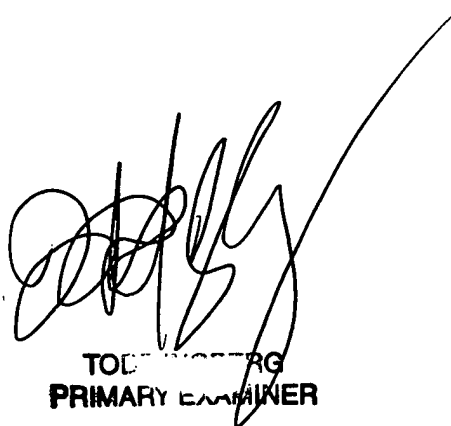
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (571) 272-3719. The fax phone number for the organization where this application or processing is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QN
January 7, 2005



TODD M. BERG
PRIMARY EXAMINER